Complete Summary

GUIDELINE TITLE

Routine prenatal care.

BIBLIOGRAPHIC SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Routine prenatal care. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2005 Aug. 80 p. [229 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Institute for Clinical Systems Improvement (ICSI). Routine prenatal care. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2004 Jul. 74 p.

* * REGULATORY ALERT * *

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important information has been released.

On September 20, 2005, the U.S. Food and Drug Administration announced on their Web site that the only U.S.-licensed manufacturer of varicella zoster immune globulin (VZIG) (Massachusetts Public Health Biologic Laboratories, Boston, MA) has discontinued manufacture of VZIG, which is indicated for patients in need of passive immunization to prevent severe varicella zoster infection.

On February 8, 2006, the FDA noted that the supply of the licensed VZIG product is nearly depleted. However, an investigational (not licensed) VZIG product (manufactured and currently under development by Cangene Corporation Winnipeg, Canada) is available under an investigational new drug application (IND) protocol. This product may be requested through FFF Enterprises (Temecula, CA) for individuals who have been exposed to varicella and who are at increased risk of complications from varicella. See the FDA Web site for more information.

In addition, the Centers for Disease Control and Prevention have released information regarding this new product (VariZIG™). See the CDC Web site for more information.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Preconception and pregnancy (Counseling; Screening)
- Perinatal complications (Prevention; Risk Assessment)

GUIDELINE CATEGORY

Counseling
Evaluation
Prevention
Risk Assessment
Screening

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Nursing
Obstetrics and Gynecology
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Health Care Providers
Health Plans
Hospitals
Nurses
Physician Assistants
Physicians
Public Health Departments

GUIDELINE OBJECTIVE(S)

- To increase the percentage of pregnant women who receive timely, comprehensive screens for risk factors
- To increase the percentage of pregnant women who receive timely prenatal counseling and education as outlined in the guideline
- To increase the rate of appropriate interventions for identified change in status in women with preterm birth (PTB) risk factors
- To increase the percentage of vaginal birth after cesarean (VBAC) eligible women who receive documented education describing risks and benefits of VBAC

TARGET POPULATION

All women who are pregnant or are considering pregnancy

INTERVENTIONS AND PRACTICES CONSIDERED

Screening Maneuvers

1. Risk profiles, including preconception risk assessment, preterm labor risks, workplace/lifestyle hazards assessment, infectious disease risks, genetic risks, risks of vaginal birth after cesarean
2. Screening for rubella/rubeola and varicella status
3. Height, weight, blood pressure, history, and physical
4. Breast examination, abdominal/pelvic examination, cervix check
5. Laboratory studies:
    - Cholesterol, cervical cancer screening
    - ABO/Rh/antibodies
    - Syphilis
    - Urine culture
    - Hemoglobin
    - Fetal anomaly/biochemical screening
    - Hepatitis B surface antigen
    - Human immunodeficiency virus (HIV)
    - Blood lead screening
    - Group B streptococcus cultures
    - Gestational diabetes mellitus test
6. Fetal heart tones, fetal position, fundal height, obstetric ultrasound
7. Domestic abuse

Counseling, Education and Interventions

1. Preterm labor (PTL) education and prevention
2. Complete inventory of medications, herbal supplements, and vitamins
3. Accurate recording of menstrual dates
4. Counseling on risks and benefits of vaginal birth after cesarean
5. Prenatal and lifestyle education

Immunization and Chemoprophylaxis

1. Vaccinations: varicella, rubella/rubeola [measles/mumps/rubella-MMR], hepatitis B, tetanus-diphtheria [Td] booster and influenza
2. RhoGAM - D immunoglobulin
3. Hepatitis B immunoglobulin
4. Nutritional supplements, including folic acid supplementation

MAJOR OUTCOMES CONSIDERED

- Cost-effectiveness of prenatal care
- Sensitivity and specificity of screening maneuvers
- Maternal/fetal health outcomes

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

No additional description of literature search strategies is available.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Key conclusions (as determined by the work group) are supported by a conclusion grading worksheet that summarizes the important studies pertaining to the conclusion. Individual studies are classed according to the system presented below and are designated as positive, negative, or neutral to reflect the study quality.

Conclusion Grades:

Grade I: The evidence consists of results from studies of strong design for answering the question addressed. The results are both clinically important and consistent with minor exceptions at most. The results are free of any significant doubts about generalizability, bias, and flaws in research design. Studies with negative results have sufficiently large samples to have adequate statistical power.

Grade II: The evidence consists of results from studies of strong design for answering the question addressed, but there is some uncertainty attached to the

conclusion because of inconsistencies among the results from the studies or because of minor doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from weaker designs for the question addressed, but the results have been confirmed in separate studies and are consistent with minor exceptions at most.

Grade III: The evidence consists of results from studies of strong design for answering the question addressed, but there is substantial uncertainty attached to the conclusion because of inconsistencies among the results of different studies or because of serious doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from a limited number of studies of weak design for answering the question addressed.

Grade Not Assignable: There is no evidence available that directly supports or refutes the conclusion.

Study Quality Designations:

The quality of the primary research reports and systematic reviews are designated in the following ways on the conclusion grading worksheets:

Positive: indicates that the report or review has clearly addressed issues of inclusion/exclusion, bias, generalizability, and data collection and analysis.

Negative: indicates that these issues have not been adequately addressed.

Neutral: indicates that the report or review is neither exceptionally strong nor exceptionally weak.

Not Applicable: indicates that the report is not a primary reference or a systematic review and therefore the quality has not been assessed.

Classes of Research Reports:

A. Primary Reports of New Data Collection:

Class A:

- Randomized, controlled trial

Class B:

- Cohort study

Class C:

- Nonrandomized trial with concurrent or historical controls
- Case-control study
- Study of sensitivity and specificity of a diagnostic test

- Population-based descriptive study

Class D:

- Cross-sectional study
- Case series
- Case report

B. Reports that Synthesize or Reflect upon Collections of Primary Reports:

Class M:

- Meta-analysis
- Systematic review
- Decision analysis
- Cost-effectiveness analysis

Class R:

- Consensus statement
- Consensus report
- Narrative review

Class X:

- Medical opinion

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

The guideline developers reviewed published cost analyses.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Pilot Testing
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Institute Partners: System-Wide Review

The guideline draft, discussion, and measurement specification documents undergo thorough review. Written comments are solicited from clinical, measurement, and management experts from within the member medical groups during an eight-week period of "Critical Review."

Each of the Institute's participating medical groups determines its own process for distributing the guideline and obtaining feedback. Clinicians are asked to suggest modifications based on their understanding of the clinical literature coupled with their clinical expertise. Representatives from all departments involved in implementation and measurement review the guideline to determine its operational impact. Measurement specifications for selected measures are developed by the Institute for Clinical Systems Improvement (ICSI) in collaboration with participating medical groups following general implementation of the guideline. The specifications suggest approaches to operationalizing the measure.

Guideline Work Group: Second Draft

Following the completion of the "Critical Review" period, the guideline work group meets 1-2 times to review the input received. The original guideline is revised as necessary, and a written response is prepared to address each of the suggestions received from medical groups. Two members of the Ob/Gyn Steering Committee carefully review the Critical Review input, the work group responses, and the revised draft of the guideline. They report to the entire committee their assessment of two questions: (1) Have the concerns of the medical groups been adequately addressed? (2) Are the medical groups willing and able to implement the guideline? The committee then either approves the guideline for pilot testing as submitted or negotiates changes with the work group representative present at the meeting.

Pilot Test

Medical groups introduce the guideline at pilot sites, providing training to the clinical staff and incorporating it into the organization's scheduling, computer, and other practice systems. Evaluation and assessment occur throughout the pilot test phase, which usually lasts for three months. Comments and suggestions are solicited in the same manner as used during the "Critical Review" phase.

The guideline work group meets to review the pilot sites' experiences and makes the necessary revisions to the guideline, and the Ob/Gyn Steering Committee reviews the revised guideline and approves it for implementation.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC) and the Institute for Clinical systems Improvement (ICSI): In addition to updating their clinical guidance, ICSI has developed a new format for all guidelines. Key additions and changes include: combination of the annotation and discussion section; the addition of "Key Points" at the beginning of most annotations; the inclusion of references supporting the recommendations; and a complete list of references in the Supporting Evidence section of the guideline. For a description of what has changed since the previous version of this guidance, refer to Summary of Changes - August 2005.

The recommendations for routine prenatal care are presented in the form of a table with accompanying annotations. Clinical highlights and a table for routine prenatal care follow. The reader is directed to the original guideline document for further discussion of each of the following topics.

Clinical Highlights

1. Identify patients with greater potential for high-risk for pregnancy and provide appropriate preconception counseling (Annotation #4 -- see original guideline document)
2. Each pregnant patient should receive visit-specific screening tests, education, immunizations, and chemoprophylaxis as described on the prenatal care table.
3. Each pregnant patient and each patient planning a pregnancy should receive a comprehensive risk assessment and appropriate risk-related interventions, including risks for preterm labor, relevant infectious diseases, and relevant genetic disorders.
4. For patients with previous Cesarean section, provide education of risks and benefits associated with vaginal birth after Cesarean (VBAC). Assess and document patients' desire and appropriateness for VBAC (Annotation #21 -- see original guideline document).
5. In accordance with the Minnesota Department of Health, pregnant women at risk for lead exposure should have lead screening (Annotation #20 -- see original guideline document).

Event	Preconception Visit	Visit 1** 6 to 8 weeks	Visit 2 10 to 12 weeks	1
Screening Maneuvers	• Risk profiles • Height and weight/BMI • Blood pressure • History and physical • Cholesterol and HDL • Cervical cancer screening	• Risk profiles • GC/Chlamydia • Height and weight/BMI • Blood pressure • History and physical* • Rubella • Varicella • Domestic abuse	• Weight • Blood pressure • Fetal heart tones • Fetal anomaly/biochemical screening	• • • • • • •

Event	Preconception Visit	Visit 1** 6 to 8 weeks	Visit 2 10 to 12 weeks	1
	• Rubella/rubeola • Varicella • Domestic abuse	• Hemoglobin • ABO/Rh/Ab • Syphilis • Urine culture* • HIV • [Blood lead screening] • [VBAC] • Hepatitis B surface Ag		

Counseling
Education
Intervention
	• PTL education and prevention
	• Substance use
	• Nutrition and weight
	• Domestic abuse
	• List of medications, herbal supplements, and vitamins
	• Accurate recording of menstrual dates
		• PTL education and prevention
		• Prenatal and lifestyle education
		  • Physical activity
		  • Nutrition
		  • Warning signs
		  • Course of care
		  • Physiology of pregnancy
		  • Follow-up modifiable risk factors
		• Discuss fetal anomaly biochemical screening
			• PTL education and prevention
			• Prenatal and lifestyle education
			  • Fetal growth
			  • Review lab results from visit 1
			  • Breast-feeding
			  • Physiology of pregnancy
			  • Follow-up modifiable risk factors
				•
				•

Immunization and Chemoprophylaxis	• Tetanus booster • Rubella/MMR • [Varicella/VZIG] • Hepatitis B vaccine • Folic acid supplement	• Tetanus booster • Nutritional supplements • Influenza • [Varicella/VZIG]		

Event	Visit 5 28 weeks	Visit 6 32 weeks	Visit 7 36 weeks
Screening Maneuvers	• PTL risk • Weight • Blood pressure • Fetal heart tone	• Weight • Blood pressure • Fetal heart tones	• Weight • Blood pressure • Fetal heart tones • Fundal height

Event	Visit 5 28 weeks	Visit 6 32 weeks	Visit 7 36 weeks
	• Fundal height • Cervical assessment • GDM • Domestic abuse • [Rh antibody status] • Hepatitis B surface Ag • [GC/Chlamydia]	• Fundal height	• Cervix exam • Confirm fetal position • Culture for group streptococcus

Counseling
Education
Intervention
	• PTL education and prevention
	• Prenatal and lifestyle education
	  • Work
	  • Physiology of pregnancy
	  • Preregistration
	  • Fetal growth
	  • Follow-up modifiable risk factors
	• Awareness of fetal movement
		• PTL education and prevention
		• Prenatal and lifestyle education
		  • Travel
		  • Sexuality
		  • Pediatric care
		  • Episiotomy
		  • Follow-up modifiable risk factors
		• Labor and delivery issues
		• Warning signs/PIH
		• [VBAC]
			• Prenatal and lifes education
			  • Postpartur care
			  • Manageme of late pregnancy symptoms
			  • Contracep
			  • When to c provider
			  • Discussion postpartur depressior
			  • Follow-up modifiable risk factor

Immunization and Chemoprophylaxis	• [ABO/Rh/Ab (RhoGAM)]		

[Bracketed] items refer to high risk groups only.

*It is acceptable for the history and physical and laboratory tests listed under Visit 1 to be deferred to Visit 2 with the agreement of both the patient and the provider.
** Should also include all subjects listed for the preconception visit if none occurred.
Abbreviations: CPR, cardiopulmonary resuscitation; GC, gonococci; GDM, gestational diabetes mellitus; HDL, high density lipoprotein; HIV, human immunodeficiency virus; MMR, measles/mumps/rubella; OB, obstetrics; PIH, pregnancy-induced hypertension; PTL, preterm labor; VBAC, vaginal birth after cesarean; VZIG, varicella zoster immune globulin

Practices to Consider Discontinuing

- Pelvimetry
- Routine urine dipsticks and routine urinalysis
- Routine evaluation for edema
- Routine testing for cytomegalovirus (CMV), parvovirus, toxoplasmosis
- Routine nutritional supplements

- Routine testing for bacterial vaginosis (may be necessary in women with a history of preterm labor)

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The guideline contains an annotated bibliography and discussion of the evidence supporting each recommendation. The type of supporting evidence is classified for selected recommendations (see Supporting Evidence section, pp 53 and 54 of the original guideline document).

In addition, key conclusions contained in the Work Group's algorithm are supported by a grading worksheet that summarizes the important studies pertaining to the conclusion. The type and quality of the evidence supporting these key recommendations is graded for each study.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Appropriate and cost-effective prenatal care
- Improved maternal/fetal outcomes (reduced morbidity/mortality from obstetric complications [e.g., stillbirth, preterm delivery, chorioamnionitis, endometritis, low birth weight, and intrauterine growth restriction])

POTENTIAL HARMS

Not stated

CONTRAINDICATIONS

CONTRAINDICATIONS

- Refer to Annotation #21 in the original guideline document for information on contraindications to vaginal birth after cesarean (VBAC).
- Vaccination against influenza is contraindicated for women with a history of hypersensitivity to chicken eggs or to vaccine components such as the preservatives.
- High doses of vitamin A and molybdenum supplements are contraindicated in pregnancy.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- These clinical guidelines are designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients, and are not intended either to replace a clinician's judgment or to establish a protocol for all patients with a particular condition. A guideline will rarely establish the only approach to a problem.
- This clinical guideline should not be construed as medical advice or medical opinion related to any specific facts or circumstances. Patients are urged to consult a health care professional regarding their own situation and any specific medical questions they may have.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Once a guideline is approved for general implementation, a medical group can choose to concentrate on the implementation of that guideline. When four or more groups choose the same guideline to implement and they wish to collaborate with others, they may form an action group.

In the action group, each medical group sets specific goals they plan to achieve in improving patient care based on the particular guideline(s). Each medical group shares its experiences and supporting measurement results within the action group. This sharing facilitates a collaborative learning environment. Action group learnings are also documented and shared with interested medical groups within the collaborative.

Currently, action groups may focus on one guideline or a set of guidelines such as hypertension, lipid treatment, and tobacco cessation.

Detailed measurement strategies are presented in the original guideline document to help close the gap between clinical practice and the guideline recommendations. Summaries of the measures are provided in the National Quality Measures Clearinghouse (NQMC).

IMPLEMENTATION TOOLS

Chart Documentation/Checklists/Forms
Patient Resources
Pocket Guide/Reference Cards
Quality Measures

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

RELATED NQMC MEASURES

- Routine prenatal care: percentage of pregnant women who received counseling and education by the 28th week visit.
- Routine prenatal care: percentage of all identified preterm birth (PTB) modifiable risk factors assessed that receive an intervention.

- Routine prenatal care: percentage of vaginal birth after cesarean (VBAC) eligible women who receive general education describing risks and benefits of VBAC (e.g., the American College of Obstetricians and Gynecologists [ACOG] pamphlet on VBAC).

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Routine prenatal care. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2005 Aug. 80 p. [229 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1997 Aug (revised 2005 Aug)

GUIDELINE DEVELOPER(S)

Institute for Clinical Systems Improvement - Private Nonprofit Organization

GUIDELINE DEVELOPER COMMENT

Organizations participating in the Institute for Clinical Systems Improvement (ICSI): Affiliated Community Medical Centers, Allina Medical Clinic, Altru Health System, Aspen Medical Group, Avera Health, CentraCare, Columbia Park Medical Group, Community-University Health Care Center, Dakota Clinic, ENT Specialty Care, Fairview Health Services, Family HealthServices Minnesota, Family Practice Medical Center, Gateway Family Health Clinic, Gillette Children's Specialty Healthcare, Grand Itasca Clinic and Hospital, HealthEast Care System, HealthPartners Central Minnesota Clinics, HealthPartners Medical Group and Clinics, Hutchinson Area Health Care, Hutchinson Medical Center, Lakeview Clinic, Mayo Clinic, Mercy Hospital and Health Care Center, MeritCare, Mille Lacs Health System, Minnesota Gastroenterology, Montevideo Clinic, North Clinic, North

Memorial Care System, North Suburban Family Physicians, Northwest Family Physicians, Olmsted Medical Center, Park Nicollet Health Services, Pilot City Health Center, Quello Clinic, Ridgeview Medical Center, River Falls Medical Clinic, Saint Mary's/Duluth Clinic Health System, St. Paul Heart Clinic, Sioux Valley Hospitals and Health System, Southside Community Health Services, Stillwater Medical Group, SuperiorHealth Medical Group, University of Minnesota Physicians, Winona Clinic, Ltd., Winona Health

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GUIDELINE COMMITTEE

Ob/Gyn Steering Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Members: Dale Akkerman, MD (Work Group Leader) (Park Nicollet Health Services) (OB/GYN); Joan Kreider, MD (HealthPartners Medical Group) (OB/GYN); John A. Jefferies, MD (Mayo Clinic) (OB/GYN); Jane Willett, DO (Affiliated Community Medical Centers (OB/GYN); Tamara Johnston, MD (Northwest Family Physicians) (Family Practice); Georgeanne Croft, CNM (HealthPartners Medical Group) (Nurse Midwifery); Amy Knox, CNM (Park Nicollet Health Services) (Nurse Midwifery); Corinne Esch, RN (HealthPartners Medical Group) (OB/GYN Nursing); Rick Carlson, MS (HealthPartners Medical Group) (Measurement Advisor); Nancy Jaeckels (Institute for Clinical Systems Improvement) (Implementation Advisor); Nancy Greer, PhD (Institute for Clinical Systems Improvement) (Evidence Analyst); Linda Setterlund, MA (Institute for Clinical Systems Improvement) (Facilitator)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

In the interest of full disclosure, Institute for Clinical Systems Improvement (ICSI) has adopted the policy of revealing relationships work group members have with companies that sell products or services that are relevant to this guideline topic. The reader should not assume that these financial interests will have an adverse impact on the content of the guideline, but they are noted here to fully inform users. Readers of the guideline may assume that only work group members listed below have potential conflicts of interest to disclose.

No work group members have potential conflicts of interest to disclose.

ICSI's conflict of interest policy and procedures are available for review on ICSI's website at www.icsi.org.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Institute for Clinical Systems Improvement (ICSI). Routine prenatal care. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2004 Jul. 74 p.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: www.icsi.org; e-mail: icsi.info@icsi.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Patient assessment forms. Annotation Appendices A-F in the original guideline document. Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.

PATIENT RESOURCES

The following is available:

- Routine prenatal care. Bloomington (MN): Institute for Clinical Systems Improvement, 2005 Jan.

Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This summary was completed by ECRI on February 15, 2000. The information was verified by the guideline developer on March 15, 2000. This summary was

updated by ECRI on April 19, 2001, May 7, 2002, February 5, 2003, March 25, 2004, November 12, 2004, and October 13, 2005. This summary was updated by ECRI on March 3, 2006 following the FDA advisory on varicella zoster immune globulin (VZIG).

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